8.b. Current Educational Activities

Participating jurisdictions recognize that due to the very nature of non-point source pollution, public education is an essential strategy to protect every watershed. In order to reduce pollution, all those who live, visit and conduct business within our watersheds must become informed and involved. Making all San Diegans aware of the importance of individual actions in protecting our water resources and promoting watershed stewardship are crucial components for the success of this program.

Currently, storm water education within the region is conducted on two levels: the countywide and the jurisdictional levels. Some examples of ongoing educational activities at each of these levels are identified in Table 8-1 below:

Table 8-1: Ongoing Educational Activities

Area	Type	Description
County-Wide	Project Clean Water	County initiated effort provides the forum for information sharing to promote regional collaboration and consistency in outreach. The Education and Resource Development Technical Advisory Committee has been meeting since November 1, 2000. This TAC, which broadly encompasses a variety of outreach topics, works closely with the Copermittees' Education Technical Workgroup on the development and implementation of storm water and urban runoff outreach activities.
	Think Blue Media Campaign	Bilingual (English/Spanish) television and radio Public Service Announcement advertising campaign airing on 32 local broadcast outlets. Campaign developed and administered by the City of San Diego with financial support from the County and Port of San Diego as well as California Department of Transportation – District 11.
	Industrial/ Commercial Workshops	Series of industry specific workshops scheduled throughout the region under the leadership of the County of San Diego Department of Environmental Health. Featured speakers and panelists provide attendees with the most up-to-date information about storm water requirements and Best Management Practices. To date, automotive, landscaping, mobile services and restaurant industries have been targeted.
Jurisdictional	Storm Water Public Presentations (City of San Diego)	Presentations are made on a regular basis to community planning groups and other interested groups. Presentations content consists of general information about the municipal storm drain system, sources of non-point pollution as well as good housekeeping practices.
	Other Public Presentations (City of San Diego)	Presentations are made on a regular basis to community business associations. Presentations content is tailored to meet the needs of the audience and specific Best Management Practices are identified.

Area	Type	Description
	San Diego School District – Water Cycle Curriculum Integration (City of San Diego)	City of San Diego is working with the San Diego School District to develop a K-12th grade water cycle education module for integration into the schools curriculum. The goal of this effort if to foster stewardship of San Diego's unique marine environment among school age children.
	Newsletter Articles (City of Imperial Beach)	Articles are placed in the City newsletter each quarter listing general BMPs and focusing on a specific activity. The newsletter also promotes the City Household Hazardous Waste Program.
	Classroom Presentations (City of Imperial Beach)	Presentations are given to Elementary and High School students regarding storm water pollution prevention and recycling.
	School Presentations (County of San Diego)	Bilingual (English/Spanish) water quality educational program for grades K-6 : Participation at the High School level is accomplished through presentations made in school-wide Environmental Wellness Fairs

Education practices within the region are generally coordinated among jurisdictions to ensure that the messages are consistent and no conflicting information reaches the public. Additionally, an aggressive program to educate municipal staff has been undertaken by each jurisdiction in the region.

8.c. Watershed Strategy

The main objective of the watershed strategy is to capture audience attention, impart messages that are understood, retained, and ultimately prompt behavioral changes. Establishing key messages – or succinct, attention grabbing, easily understandable and motivational information – is crucial to program success. It is important to note that successful communication campaigns begin with key, core messages, which are repeated often and given time to become "common knowledge" with target audiences. As time evolves, these core messages are built upon with new and more detailed information. In this manner, multiple messages are not disseminated into the public arena simultaneously, possibly causing confusion and resulting in a lack of attention and recognition. This staged approach will be particularly important under the education program given the extensive amount of information required to be covered and the long term need to address watershed-specific issues as the program evolves.

While core program messages remain consistent throughout all communication vehicles, where appropriate, these messages are tailored for individual target audiences. For example, an overall message to "identify and isolate potential flows to a storm drain" is refined for homeowners to identify typical flow sources around the house. For the business community, the message is focused on typical commercial and industrial activities that result in potential flow to storm drains. These messages provide a baseline from which watershed concepts can be threaded into current educational efforts as appropriate.

A strong watershed strategy is important for establishing ownership in the minds of the target audience. Residents are more likely to respond to education when they understand the impacts of upstream activities on downstream areas. It is important to emphasize that the broad messages (e.g., storm water system conveys flows directly to receiving waters with no form of treatment) will continue to be the greater priority for participating jurisdictions. Participating jurisdictions will refine current baseline education programs to integrate watershed concepts as appropriate.

Watershed concepts will be generally focused in order to meet the needs of different sub-regions and associated land uses within the watershed. For example, the areas within the watershed under the jurisdiction of the County of San Diego contain primarily very low-density residential development with limited industrial and commercial uses. Meanwhile, areas within the cities of San Diego and Imperial Beach are generally intensely developed with a wide variety of land uses. As such, the County will generally focus its efforts in order to address rural areas and associated very low-density residential communities within the watershed. On the other hand, the cities would target all land uses by incorporating watershed specific principles into their existing jurisdictional education programs.

Over the short term, the education program will focus on three basic principles:

(1) What is a watershed?

(2) We all live in a watershed[24]

(3) Watershed stewardship (all individual actions within our watersheds add up in a cumulative way to influence the health of our water resources)

Suitable storm water Best Management Practices (BMPs) will be incorporated into the education program as determined appropriate to the target audience. Additionally, it is widely recognized that California creeks and rivers are being contaminated with pesticides, primarily *diazinon* and *chlorpyrifos*. Within the San Diego region, available data indicates that this is a widespread challenge and will addressed under the watershed education strategy.

Over the long term, the watershed message will be further developed to address other specific constituents of concern within the watershed based on the yearly water quality assessment performed as part of the annual reports associated with the overall program. The watershed education strategy will be built as a multi-phased approach that is driven by achievement of milestones as determined through the annual assessment.

[24] It should be noted that in a recent residential survey conducted within the City of San Diego, two-thirds of respondents (68 percent) said they were not familiar with the concept of a watershed. Further, less that one third (28.2 percent) said that they live in a watershed.

8.d. Education Action Plan

Table 8-2 (Education Element Action Plan) identifies the actions that participating jurisdictions will undertake over the short and long term in order to further develop and implement the watershed based education element:

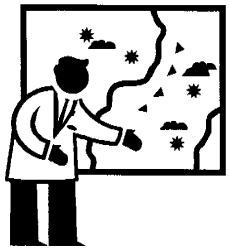
Table 8-2: Education Element Action Plan

Tasks	Description	Target Audience(s)	Responsible Party	Schedule[25]
Public Presentations and Media – Watershed Element	Incorporate general watershed concepts and principles into jurisdictional education activities including public presentations and media opportunities. Where appropriate incorporate watershed specific components including identification of receiving waters.	General public including residents and business community	All jurisdictions	ongoing
School Districts – San Diego Watersheds	Incorporate watershed principles including hands on activities in local waterways into water cycle element to be incorporated into San Diego School District curriculum	K – 12th children	City of San Diego	Sep 02 – Jan 05
Integrated Pest Management	An Integrated Pest Management Program will be implemented. Deliverables will include printed educational materials. Other target outreach opportunities will be evaluated and integrated as appropriate	Single family homes and related businesses (landscaping, pest control nurseries, agriculture)	All jurisdictions	July 04–– Dec 05 (guide development) Distribution would be ongoing task
Which is my watershed?	Develop region-wide poster which identifies watersheds and receiving waters to be used in outreach events (such as Earth Fair)	General public but children in particular	All jurisdictions	Jan 04 – Jan 05

[25] All proposed activities are subject to change based on budgetary and staffing constraints - Proposed activities will be reviewed as needed on an annual basis.

Tasks	Description	Target Audience(s)	Responsible Party	Schedule[25]
Watershed brochure	Tailor messages based upon data/information gathered and create a unified information piece, such as a brochure, which includes a map, and highlights targeted messages, as determined by water quality assessment and other available information. Jurisdictions can highlight programs, services, and regular activities as well as feature practices which address the watershed's critical needs	General Public	All jurisdictions	July 04 – June 05 (brochure development) Distribution would be ongoing task
Partners in Clean Waters	Identify and evaluate efforts by others in the region which support the goals of storm water program (e.g., water conservation) and pursue partnerships as appropriate	General Public	City of San Diego; County of San Diego	2004 – beyond
Community Events – Focus on Local Water Body	Develop activities/materials specific to each watershed that identify receiving waters as well as address specific constituents of concern through a series of recommended actions/behaviors.	General public but children in particular	County of San Diego	2006 - beyond

9. PROGRAM EFFECTIVENESS STRATEGY



In order for a plan to be successful, clear goals and objectives must first be established, agreed to and implemented by the Copermittees. Otherwise, program activities and tasks are adopted without an understandable purpose or clear direction. As discussed in Section 1, and echoed throughout the body of the document, the Copermittees have identified a program goal and four underlying objectives that will guide decision-making as the Copermittee develop and implement the Watershed URMP.

PROGRAM GOAL

To Positively Affect the Water Quality of the Tijuana River Watershed While Balancing Economic, Social and Environmental Constraints.

Objective #1: Develop/expand methods to assess and improve water quality within the watershed.

Objective #2: Integrate watershed principles into land use planning.

Objective #3: Enhance public understanding of sources of water pollution within the watershed.

Objective #4: Encourage and enhance stakeholder involvement within the watershed.

It is the intent of this section to establish an evaluation strategy to determine the effectiveness of these objectives.

9.a Evaluation Strategy

The strategy to evaluate the effectiveness of the Watershed URMP includes developing objectives that are measurable, have an expected outcome, and an established preliminary performance standard as an indicator of meeting or exceeding expectations. This process is supported by the EPA, whose literature indicates that "*for a watershed management plan to be effective, it should have measurable goals describing desired outcomes and methods for achieving those goals*"[26]. Therefore, on an annual basis, Copermittees will assess data collected for each of the objectives listed above to assist in the annual Watershed URMP assessment.

In addition, annual results from the water quality assessment will be integrated into the Watershed URMP policies and the program effectiveness evaluation where practical. This will provide meaningful feedback to the Copermittees as to whether or not programmatic activities are useful in meeting the overriding goal of the Permit – to improve water quality in the region (The term "Water Quality" is defined as including the triad characteristics identified by the Copermittees (these include the benthic community assessment, toxicity levels, and water chemistry [chemical and physical data]).

In each future year, the program effectiveness evaluation strategy will also consider linkages between water quality and programmatic activities, and the results will be used to alter program delivery, operations, goals, objectives, expected outcomes or other programmatic actions where possible. As the water quality assessment is expanded, the results will be used to develop targeted

[26] Guidance Specifying Management Measures for Sources of Nonpoint Pollution, 1993

mitigation activities where and when appropriate, which may also alter the stated objectives. Therefore, the objectives outlined herein are considered to be dynamic, and will likely be updated each year. It must be noted that the ability of the Copermittees within this watershed to meet or exceed stated objectives, activities, and performance indicators does not itself suggest that the program is effective. Rather, the question that must ultimately be answered in evaluating the effectiveness of the program is *"Are program activities an effective method to improve water quality?"*

In order to answer that question, water quality monitoring data must be collected over a long period of time; beyond the life of the Permit. Although the stated purpose of the program effectiveness evaluation strategy is to address the long-term effectiveness of selected program activities and elements; intermediate, or short-term activities will also be tracked and assessed. This will provide important feedback on more frequent intervals, allowing the Copermittees to make adjustments each year. For this reason, both short-term and long-term activities are discussed together throughout the remainder of this section.

The long-term goal of the program effectiveness evaluation will be to develop and refine programmatic activities that have a positive effect on improving water quality. However, the first few years of the program effectiveness evaluation strategy will examine several key "first steps" (short-term activities) toward meeting this long-term goal. Thereafter, objectives and activities will be assessed annually and modified when linkages to water quality are developed or when modification is appropriate.

The short-term activities will be addressed in each annual report and will answer the following questions:

1. Are the Copermittees able to implement new methods for working together as a watershed group?

2. Are the Copermittees able to implement a community outreach program and provide a mechanism for community participation?

3. Are the Copermittees able to determine the effect, if any, of programmatic activities on water quality?

The answers to these questions, coupled with the water quality assessment, will provide a means to assess the program through a continuous feedback-loop of implementation, assessment, and evaluation.

In order to develop a meaningful program effectiveness strategy, a needs assessment, baseline data collection to measure "pre-implementation" levels, the formation of program elements targeting the needs identified in the assessment and "post-implementation" data collection to ultimately determine the effect of programmatic activities on changes in water quality has been prepared – this process is also a means for using direct measurements of program activities. Effectiveness assessment measures are generally divided into two types, direct and indirect, which are more fully discussed below:

- **Direct measures.** Direct measures are those that focus on characterizing the quality of water bodies receiving discharges from Copermittee MS4s or on assessing other parameters with an immediate or well-established nexus to changes in the quality of those waters. Examples of direct measurement include receiving waters monitoring, estimation of pollutant loadings from specified areas (catchments, municipalities, watersheds, etc.), and focused evaluations of structural BMPs. Direct measures generally include actual measurement or quantification of pollutants (e.g., reductions in concentrations of chemicals of concern, etc.) or of the amount of materials extracted or diverted by a BMP (e.g, through household hazardous waste collection, etc.).

- **Indirect measures.** Because direct measures can be difficult and expensive to obtain, and because they often require long assessment periods to fully assess, a variety of indirect measures are generally used to evaluate storm water program effectiveness. Indirect measures are based on the assumption that the use of specific program activities is effective in decreasing storm water pollution and therefore in protecting water quality. They are typically used to assess the performance of non-structural source control BMPs such as storm drain stenciling and public education programs. Indirect measures typically focus on degrees of implementation or comparison to standards or goals rather than actual water quality assessment or measures of pollutant loading. By measuring the degree or success of implementation of BMPs, it may therefore be possible to make *inferences* about water quality benefits. Inferences, however, are assumptions and should not be given the same weight as direct measures, which provide *direct-impact data.* Indirect measures should be pursued in combination with more broadly focused direct measures to allow Copermittees to prioritize limited resources, conduct meaningful assessments on intermediate time frames, and focus their efforts on particular BMPs and program elements.

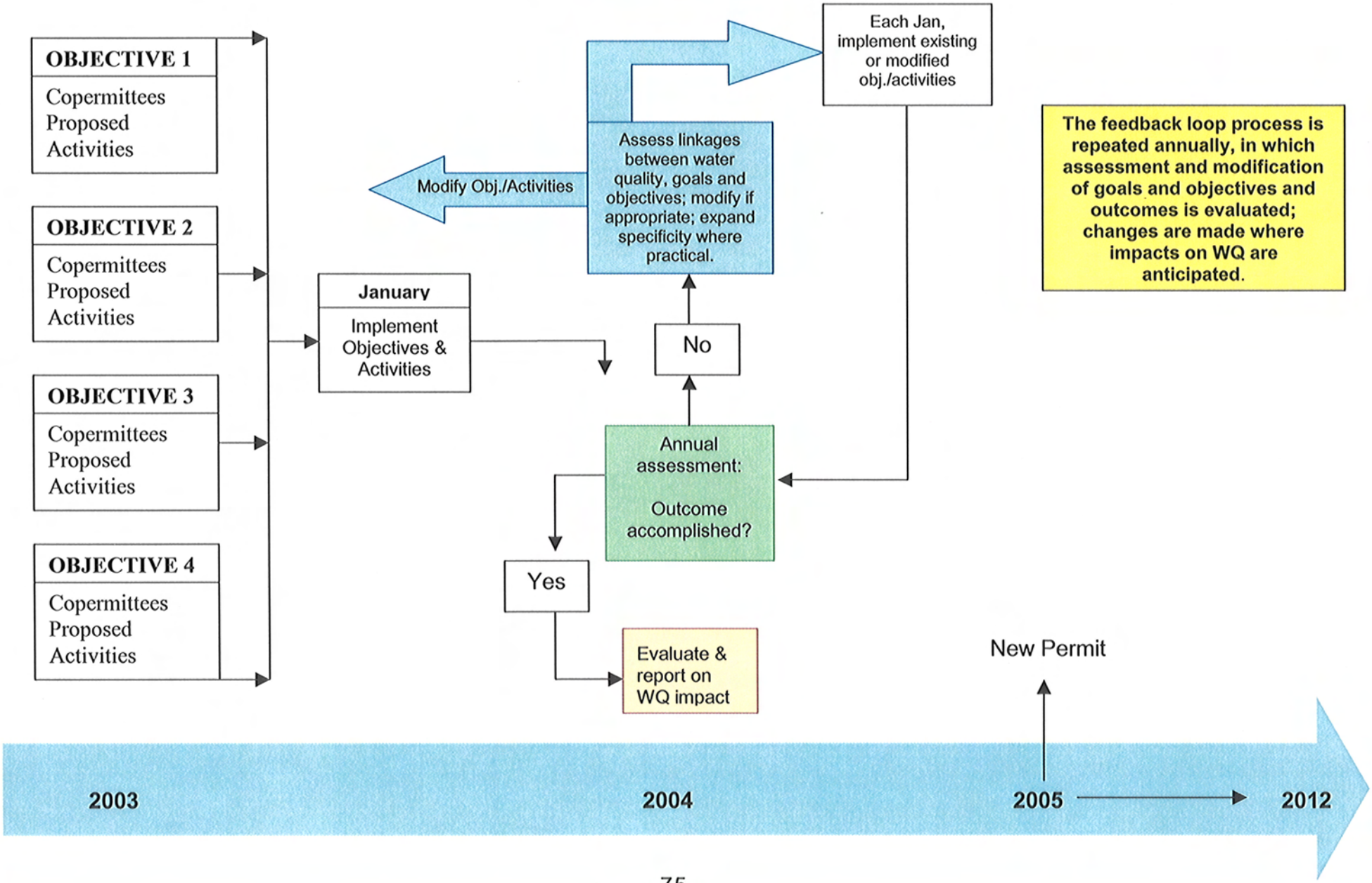
Whether using direct or indirect measures of effectiveness, baseline conditions must be defined. All future comparisons showing improvements could then be made relative to these baseline conditions. In the absence of a well-defined baseline, improvements cannot be adequately measured. A suite of measures that allows for assessment on a variety of levels and time frames will be developed if resources and time permit.

Because program requirements are being implemented and the effectiveness strategies formulated prior to a developed nexus between expected outcome (improved water quality) and program activities, the effectiveness of "permit compliance" will be the measured outcome during the first few years of program implementation rather than "effectiveness of program activities on water quality." Basically, the process is the reverse of best practices for program-impact evaluations. Therefore, in an effort to reduce measurement deficiencies in the program effectiveness strategy due to the flaws in the evaluation process, the goals and objectives will be evaluated and modified as linkages to improved water quality are developed. In other words, once a program activity is

established as having a link to improved water quality, the Copermittees will work towards implementing those types of programmatic changes, when possible.

It is expected that the program objectives and activities will change as each annual evaluation and assessment is conducted. The objectives outlined in this section are the Copermittees first attempt to establish a feedback-loop program evaluation process that addresses both permit-compliance and water quality impacts at this very early stage of program evaluation. The feedback loop is illustrated in Figure 9-1 and demonstrates the estimated time frame for achieving each goal, the expected time frame before the impact on water quality will be available (estimated to be 2012) and the annual feedback process for assessing linkages between activities and water quality impacts.

Figure 9-1: Feedback Loop



In summary, the best measure of program effectiveness is improvement in the quality of receiving waters. Where possible, measurement of such changes will be pursued. However, three important limitations should be acknowledged here.

1. Measuring the "quality" of any receiving water is not a straightforward exercise. In many cases, baseline conditions have yet to be reliably established, and considerably more time may be required to do so;

2. Water quality changes in response to program implementation are likely to be very slow and not measurable within this or other near-term Permit cycles (as shown on the program effectiveness strategy illustration); and,

3. Establishing a nexus between targeted program activities and water quality improvement is difficult, if not often impossible.

The following sections describe the objectives, activities, and expected outcomes for the first annual program effectiveness strategy in an effort to evaluate the effectiveness of their program on water quality within the watershed.

9.b Review of Watershed URMP Goals, Objectives, & Activities

Each objective, the justification for selecting the objective, how the objective ties back to the program goal and the expected outcome are discussed in more detail below.

Annually, each objective and the ability of the Copermittees to meet the stated activities/tasks that were assigned to each objective will be evaluated for effectiveness in terms of impact on water quality when data for the assessment is available and reliable. This will allow a mechanism for modifications to the program. It must be stressed that this is a living document and the objectives, activities and tasks proposed may need to be modified in the coming years.

The process for assessing program effectiveness will be a multivariate approach integrating direct and in-direct measures, jurisdictional activities, statistical analysis (when available) and performance measures. The overall effectiveness of the entire program will be addressed in the annual narrative report to the RWQCB using all relevant information and examining the ability of the Copermittees to meet or exceed the stated goals and performance indicators. It is not likely that direct measures of *program effectiveness on water quality* will be available within the life of this permit cycle; however the Copermittees remain hopeful that the activities as presented will move the evaluation a step closer with each annual assessment.

OBJECTIVE #1: Develop/expand methods to assess and improve water quality within the watershed.

Justification

The justification for this objective is obvious in that the purpose of a jurisdictional or watershed stormwater program is to ultimately improve the quality of the water in the watershed. In order to accomplish this, we must expand upon existing methods or develop new methods to improve our understanding of the problems and ultimately the water quality within the watershed. By developing and expanding methods to improve water quality, stakeholders will be able to validate preliminary water quality concerns and possibly find new COCs within the watershed. As more information becomes available, it is anticipated that people's actions (behavior) will change in an effort to minimize impacts to water quality.

Expected Outcome

Over time, the expected outcome of this objective will be multi-faceted:

1) Develop an understanding (characterization) of the water bodies within the watershed;

2) Develop and/or verify a list of constituents of concern (COC) for the watershed;

3) Prioritize the COCs for potential improvement;

4) Develop an action plan to mitigate harmful effects of COCs; and,

5) Transition to watershed-based monitoring program;

Using the triad of benthic community assessment, toxicity levels, and water chemistry, measure changes on water quality; however water quality changes are not expected to be statistically significant within the life of this permit.

Performance Measure

It cannot be overstated that direct measures are the most definitive way of determining an objective's (as well as program's) overall effectiveness. However, as echoed throughout this document, establishing useful direct measures are not only costly, but time consuming.

As stated in the Copermittees's respective JURMPs, the jurisdictions are required to gather water quality information on the watershed(s). However, this is a new process for most jurisdictions and all relevant water quality information has yet to be collected and/or reviewed. In fact, in some cases,

the COCs identified in the Watershed URMPs are based on only one year's worth of water quality data. In these instances, the expenditure of public funds towards unconfirmed issues is often unjustified until issues can be validated and clearly identified. As stated in Section 5 of the Watershed URMP, several activities are proposed to obtain this additional water quality data and validate COCs. Once this information is collected, a baseline can be established, which will act as the measure for all future activities and tasks. The Copermittees will track and report to the Regional Board as part of the annual report, the various activities/tasks that have been identified for this objective. The performance measure for these tasks may be a simple response (task completion? Yes/No) to something more tangible (tracking shared documents).

OBJECTIVE #2: Integrate watershed principles into land use planning.

Justification

Urban runoff does not follow jurisdictional boundaries, and often travels through many jurisdictions while flowing to receiving waters. However, cities and counties have traditionally exercised their land use authority independently, with limited consideration of the chemical, biological, and physical processes that govern the generation, transport, and fate of contaminants and stressors at the watershed scale. Land use policies of individual municipalities have the potential to affect water quality in water bodies well beyond jurisdictional boundaries. One of the overriding purposes of the Watershed URMP is to change the region's approach to planning, and integrate watershed-based planning principles into what is often a jurisdictional-based, often fragmented, planning exercise.

Expected Outcome

The expected outcome of this objective and related tasks is to improve collaborative efforts among watershed Copermittees. This outcome is not expected to measurably improve water quality in the near term. However, increased stakeholder and Copermittee coordination within watersheds will likely have a synergistic effect on water quality efforts, thereby indirectly making positive contributions towards water quality.

Performance Measure

In order to measure the effectiveness of this objective, a baseline to which all Copermittee activities will be measured must be established. As previously discussed in Section 6, prior to the issuance of the Permit, jurisdictions were applying little if any watershed principles in land use planning. Therefore, it is assumed that with the exception of discretionary project review, no watershed principles were regularly being applied. Under this approach, the Copermittees assume that an increase in the use of watershed principles will

result in an effective program objective (e.g. year one, 2 of 5 jurisdictions apply 'X' watershed principles into land use planning, year two , 4 of 5...).

As discussed in Section 6, several activities and tasks have been established for this objective. However, trying to measure program effectiveness on activities or tasks that are not easily quantifiable is virtually impossible. The Copermittees will track, and report to the regional board as part of the annual report, the various activities/tasks that have been identified for this objective. The performance measure for these tasks may be a simple response (task completion? Yes/No) to something more tangible (tracking shared document).

OBJECTIVE #3: Enhance public understanding of sources of water pollution within the watershed.

Justification

Education is the foundation of an effective URMP and the basis for changes in behavior at the individual and societal levels. Stormwater quality topics can be very focused (identification of the types of source control BMPs) or general (answering the question: What is a watershed?) and can target many audiences to inform them of how individual actions impact water quality and how these impacts can be avoided.

Expected Outcome

The long-term outcome expected from this objective is to improve water quality through a change in human behavior and increased knowledge among community residents and business owners. Measurable changes in water quality may not be realized during the life of this permit. In the interim, the short-term outcome is that a consistent message regarding watershed concepts, urban runoff and pollutant-causing activities will be developed with the assumption that (over time) the educational program will produce a change in human behavior which improves the quality of water and thus the beneficial use/and quality of life.

Performance Measure

Surveys are an effective performance measure to determine a population's knowledge or understanding of water quality issues. Under this approach, however, an inference must be made that an increase in awareness translates into a change in public behavior. Through the use of surveys, the effectiveness of program activities can be assessed within a shorter period of time (2-3 years), allowing the Copermittees to adjust the activities/tasks accordingly to maximize program effectiveness. The Copermittees will conduct a baseline assessment that targets the residential population. A survey or other measurement tool will assess current levels of knowledge relating to water pollution issues within the watershed.

The Copermittees have also established an extensive list of activities/tasks that are to be completed as part of this objective. As stated in previous sections, measuring specific task/activity effectiveness is virtually impossible to tie to improved water quality. As such, an inference must be made that completing the activities/tasks will indirectly impact water quality within the watershed. The Copermittees will track, and report to the regional board as part of the annual report, the various activities/tasks that have been identified for this objective. The performance measure for these tasks may be a simple response (task completion? Yes/No) to something more tangible (was an educational brochure created and distributed?).

OBJECTIVE #4: Encourage and enhance stakeholder involvement within the watershed.

Justification

The objectives and activities found in watershed management plans ultimately impact current as well as proposed land uses. In order to develop an effective plan, the importance of stakeholder input cannot be overstated. There are three important reasons for the need of stakeholder involvement.

- Stakeholders can provide jurisdictions with a different perspective on watershed issues. Because stakeholders have varying backgrounds and experience levels, they are sometimes able to identify issues and solutions not previously identified by jurisdictions.

- Water quality data is collected by a number of different stakeholders for a number of different reasons. Copermittees can work with stakeholders to pull their data together in an attempt to develop a useful water quality database that helps identify and validate water quality issues as well as possible solutions.

- It is a prudent planning principle to involve the public in comprehensive plan development as a watershed plan ultimately impacts stakeholders. As such, it is imperative that stakeholders are clear on the intent and purpose of the plan as well as the activities being identified.

Expected Outcome

The short-term expected outcome is to increase the amount of current stakeholder involvement in watershed related issues. It is assumed that an increase in stakeholder involvement will ultimately lead to improved water quality, which is the long-term expected outcome for this objective. While we will be able to measure the short-term outcomes, the long-term outcome will be difficult, as measurable changes in water quality are not expected within the life of the Permit.

Performance Measure

In order to measure the effectiveness of this objective, a presumption must be made that an increase in stakeholder involvement equates to improved water quality. Once this inference is made, the next step is to establish a baseline to which all other activities will be measured. However, it is infeasible to trying to identify the number of stakeholder groups that have had involvement in watershed plans prior to the issuance of the Permit. As such, it is assumed for this evaluation that there was no previous stakeholder involvement and the issuance of the Permit represents the starting point for this effort. Under this approach, the Copermittees assume that increases in stakeholder involvement will result in an effective program objective.

As discussed in Section 7, several activities and tasks have been established for this objective. To measure this objective, an inference must be made that completing the activities and tasks will indirectly impact water quality within the watershed. The Copermittees will track, and report to the regional board as part of the annual report, the various activities/tasks that have been identified for this objective. The performance measure for these tasks may be a simple response (task completion? Yes/No) to something more tangible (copy of meeting agendas).

9.c Performance indicators

Standard performance indicators for achieving the objectives would commonly include percent-changes in pollutant loading, water quality, community knowledge, etc. Performance indicators are typically established based upon *baseline level data, which is not available at this time* (as discussed in the Section 1, Introduction). Without baseline data, it would be immature to set the performance markers at this time. However, the Copermittees have agreed on the following standard performance indicators:

By the end of 2003:

- Completion of the Water Quality Assessment and Prioritization – initial (2002) and comparative data in 2003;
- Development of the list of COCs with linkage to potential contributors; and,
- Implementation of each of the objectives for 2003 as presented (efforts will also be evaluated among Copermittees regarding collaboration and cooperation).

2003 and on-going:

- Ability to utilize the feedback-loop method for modification of goals and objectives;

- Continued watershed workgroup meetings; and,

- A measurably and statistically significant change between 2003 and 2004 and between 2004 and 2005 regarding the community's general knowledge of "what is a watershed," storm water pollution prevention activities will indicate that the Copermittees have been effective at 1) communicating a cohesive message, 2) communicating information about activities that contribute to water pollution, and 3) being able to transition from jurisdictional approaches to a watershed-based approach.

Performance of objectives are predicated on the ability of the individual jurisdictions to provide wet and dry weather monitoring data, follow jurisdictional protocols, obtain jurisdictional support, cooperate together to find solutions, opportunities and methods for change. The inability to achieve objectives is **not** indicative of "program ineffectiveness," but discussion and assessment will be included in the annual reports to the RWQCB; the program is adaptive in nature to accommodate increased knowledge about the linkages between program activities and water quality. Goals and objectives and performance indicators, although somewhat inadequate at this time, are expected to become more meaningful as knowledge and scientific data is generated over time.

9.d Data collection and reporting

Data Collection. At this time, it is expected that data to support direct measures will be collected mostly through wet and dry weather monitoring both regionally and within each jurisdiction (including coastal). Specific water quality data collection is discussed in Section Four and will be included in the annual reporting.

Data to measure pre-post BMP and/or program implementation will be collected by the best available means, which may include site-specific testing, monitoring data, pollutant loading, or any other means that is available. More specific measures will be developed as the program becomes more defined. Again, because the program evaluation is required to be submitted at the same time that program activities are being developed, some specifics are not known at the time of this writing.

Reporting. The first annual report to the RWQCB will address the following questions:

1. Are the Copermittees able to implement new methods for working together as a watershed group?

2. Are the Copermittees able to implement a community outreach program and provide a mechanism for community participation?

3. Are the Copermittees able to determine the effect, if any, of programmatic activities on water quality?

In addition, the first annual report will address the ability of the Copermittees to implement the various tasks described in each objective and achieve first-year performance indicators; modifications to objectives and or tasks as deemed prudent to move closer toward the ultimate goal of improving water quality.

Thereafter, each annual report will include modifications that have been identified, processes and practices that have been altered as the transition to a watershed-based approach is realized. The reports will include comments from Copermittee storm water program managers as to the efficacy of the program and its related objectives, an assessment of the ability to develop linkages between activities and water quality impacts, and any other relevant information that is deemed necessary and helpful to the RWQCB, other watersheds, and other Copermittees to share information to drive future development of water quality permits, program requirements, and practices.

10. SUMMARY/ CONCLUSION

Participating jurisdictions recognize that they face several significant challenges in developing and implementing this program. Further, the cities and county consider this watershed based effort to be in its infancy and expect this program will be refined and augmented over the long term as we develop a better understanding of the complex issues affecting our watersheds and learn to identify and pursue joint opportunities to positively affect the water resources in the region.

In order to further build on this initial watershed program, the program has been developed as a cyclical process of watershed assessment, priority setting, monitoring, and implementation. At the conclusion of each yearly cycle, the process begins anew, allowing participants to respond to changing conditions or adjust strategies that have not performed as anticipated. This framework establishes mechanisms for the participants to evaluate priorities, improve coordination, assess program goals, and allocate finite resources within geographic areas. It will also better address the issue of impaired water quality caused by nonpoint sources.

Adaptive management is a key requirement for the process to work. Adaptive management allows adjustments in the management direction as new information becomes available. The combination of natural variability in the hydrologic cycle and the uncertainty associated with a complex system requires that watershed managers be flexible enough to modify implementation approaches based on progress and available information. Combinations of watershed characteristics, sources of pollutants, and management approaches are unique, and therefore, management efforts may not proceed exactly as planned. Adaptive management does not mean that the watershed's water quality goals would be modified based upon lack of progress, but that the results would be used to modify management objectives, strategies, practices, and operation and maintenance procedures to reach goals.

Even though priorities will be targeted in a focused manner, it will take time for management activities to produce a quantifiable improvement in water quality. As such,

the program includes performance measures and a review mechanism. Performance data collected in subsequent cycles will be used to determine the effectiveness of previous management activities.

The challenge for watershed planning and watershed-based environmental protection is to invigorate local support by addressing local problems, and do so in a coordinated manner that enhances mutual benefits and makes progress on regional problems.

APPENDICES

Appendix A: Bibliography and Works Cited

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